# A Study of The Effect of Public and Private Debt on Zambia's Economic Growth

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#### ABSTRACT

Public and private debt plays a critical role in bridging government financing gaps especially in developing countries like Zambia with low economic growth (World Bank, 2017). Notwithstanding this fact, public debt can however be viewed as a doubled-edged sword. Public debt has become an important problem for most countries over the last decades. Despite acquiring this level of debt, most of the country's population has continued to live in excess poverty and only a few are successfully employed. The study utilized descriptive and correlational designs and sought to determine the relationship between the independent variables (private and public debt) and economic growth, investment and social progress index .The study utilised economic secondary data from 1964 to 2020 a period of 56years. The result found that public debt has negatively affected the rate of growth in the Zambian economy over the period of study. This implies that an increase in public debt will decrease economic growth. However, public debt impact on investment was found not significant at p value 0.05, despite the coefficient indicating a weak positive correlation. The association between private debt, investment, economic growth by GDP and NGDP was found to be positively correlated and significant p-values (0.0092<0.05). However, it was revealed that increasing the amount debt especially public debt affects and reduces the level of economic growth. The study revealed that private debt increases investment and domestic saving which means that they positively impact economic growth. Private debt by individuals and corporations was found to have positive effects on some social progress indicators such as literacy, carbon emission per capita, electricity access and GDP per capital growth. Finally, it was recommended that a scrutinizing agency should be established before the acquisition of debt. As this would help in reducing the acquisition of debts which have little significance in improving the economy.

*Keywords--* Private Debt, Public Debt, Economic Growth, Investments, Social Progress Index, Zambian Economy

# I. INTRODUCTION

Olufemi (2012) found that capital structure of banking corporations had no effect on the profitability of the institutions in Nigeria. The act of borrowing creates debt, debt in turn refers to the resources of money in use in an organization which is not contributed by its owners and does not in any other way belong to them (Bentour, 2021; Debrun & Fund, n.d.). It is a liability represented by a financial instrument of another formal equivalent (Ibid). The term public debt therefore, includes external and domestic debt owned by the Government, and thus, for the purpose of this study, public debt will refer to debt contracted pursuant to the Loans and Guarantee Authorisation Act, Chapter 366 of the Laws of Zambia (Bentour, 2021; Lewis & Ida, 2012; Mostafa, 2020). In this regard, the paper defines public external debt according to IMF (2003) as the gross external debt currently outstanding and not contingent liabilities that require payment of principal and/or interest by the debtor at some point in the future which is owed to non-residents by residents of an economy. On the other hand, private debt refers to loans that are typically made by individuals, corporation, non-banking investors. Private debts generates returns from interest in the loans (Stavytskyy & Bilychenko, 2018; Upreti & Upreti, 2015).

Therefore, the national debt is seen as all claims against the government held by the public and private sector of the economy, or by foreigners, whether interestbearing or not. The economic hardship may take the form of waste of productive efficiency (misdirection of production) for the economy as a whole or undesirable economic burdens imposed upon particular classes (Schaltegger & Burritt, 2010; World et al., 2017). The debt burden in Zambia has resulted in various distortions in both the micro and macro-economy. The other area affected is the social progress index of the society due to limited financial resources to finance the basic functions of the government to cover the basic needs of the people (Carlos & Carlos, 2021; Saungweme & Odhiambo, 2019; Social & Imperative, 2015). Essentially, these distortions are structural in nature, and thus affect the level of per capita incomes and are instrumental to the rising poverty in the country. The latter has attracted the attention of various authors and Zambia economic planners (World Bank, 2017). The various points of view are all agreed that the condition of Africa in general and that of Zambia in particular have now deteriorated to an economic and political catastrophe (Nzotta, 2004).

#### Statement of the Problem

Debt has become an important problem for most countries over the last decades. Public debt is one of the main macroeconomic indicators, which forms countries' image in international markets (World Bank, 2017; PMRC Parastatals Policy Analysis, 2013). In the case of Zambia, public debt over the period of analysis depicts a rising trend and, in some periods, has been recorded to be above GDP. The rise was attributed by continuous borrowing by Government, both external and internal to finance its budget deficit as it aspires to achieve its development agenda defined in the National Development Plans (NDP). Concerns have been raised about the rapid rate at which debt is been contracted. To this end, the report carried out by the IMF on Debt Sustainability Analysis (DSA) showed that the public external debt as at end 2016 was estimated at US\$9.3 billion while domestic debt stock was estimated at K53.5 billion which was 60.7% of GDP as compared to 21% of GDP in 2011 (Banda, 2015). In view of the US\$4 billion in external loans contracted since early 2016 through the first half of 2017 and additional government's borrowing plans for another \$4 billion over the next five years, the total debt burden rose to 65.5% of GDP by the end of 2017 which is almost three times the amount of debt in 2011 (Ibid). By the end of 2019, the debt burden stood at US\$11.2billion accounting for 88.6% of GDP (MOF, 2022). Despite all acquiring this level of debt, most of the country's population has continued to live in excess poverty and only a few are successfully employed (World Bank, 2017). Therefore, this research aims to assess the effect of Public and Private Debt on Zambian economic growth from 1964- 2020 and to access the relationship between public and private debt burden on the country's economic growth.

#### Main Hypothesis

 Ho: Private debt has no significant impact on Zambia's social progression index. Ha: Private debt has a significant impact on Zambia's social progression index.
 Ho: Private debt does not have a positive effect on

GDP growth on Zambia. *Ha:* Private debt has a positive effect on GDP growth on Zambia.

3. *Ho:* Public debt does not have a positive effect on GDP growth on Zambia.

*Ha:* Public debt has a positive effect on GDP growth on Zambia

4. *Ho:* Private deb.t has no significant impact on Zambia's investment output.

*Ha:* Private debt has a significant impact on Zambia's investment output.

# II. EMPIRICAL LITERATURE REVIEW

Debt, be it private or public double-edged sword (Bank, no date; Debrun and Fund, no date; Bartlett, 2012). Used wisely and in moderation, it clearly improves welfare. But, when it is used imprudently and in excess, the result can be disaster (Ibid). For individual households and firms, over-borrowing leads to bankruptcy and financial ruin. For a country, too much debt impairs the government's ability to deliver essential services to its citizens (Cecchetti, Mohanty and Zampolli, 2011; Bentour, 2021). Several studies have revealed that rapid debt accumulation have been common in both the government and private sectors. In the average year between 1970 and 2018, three-quarters of the debt were in either a government or a private debt accumulation episode or both (Schaltegger and Burritt, 2010; Randveer and Pank, 2017). Since the early 2000s, the number of combined government and private debt accumulation episodes has increased (Upreti and Upreti, 2015).

Many economies in developing countries have experienced recurrent episodes of rapid debt accumulation over the past fifty years (Schaltegger and Burritt, 2010; Bartlett, 2012; Upreti and Upreti, 2015; Bentour, 2021). Half of such episodes were associated with financial crises. Rapid debt builds up, whether public or private, increased the likelihood of a financial crisis, as did a higher share of short-term debt or larger external debt (Ibid). Countries that experienced financial crises had often employed combinations of unsustainable fiscal, monetary and financial sector policies and had often suffered from structural and institutional weaknesses (Lewis and Ida, 2012; Josef, 2016). Thus, debt has been rising for decades, and economies have been growing. With high levels of debt, policymakers are counting on robust growth to ensure sustainability. Without rising GDP, there will be no way to raise the revenues governments need to reduce their exploding debts.

Over the last decade, public debt has increasingly become a worrying issue for many advanced countries, especially in the euro area (Ebert et al., no date). These countries implemented massive fiscal stimuli in 2009 in response to the severe downturns of the 2008 financial crisis. In around 2011 countries started to reverse the course from fiscal expansion to fiscal consolidation to reduce deficit and debt ratios, which were exacerbated by those fiscal stimuli with slow recovery and long-lasting recession. The fear of a European sovereign debt default by many periphery euro area countries urged them to turn to fiscal consolidation and austerity measures in Europe. This was also fuelled by the triggered debate about the presumable existence of a public debt threshold hampering economic growth (Caner et al., 2010; Kumar and Woo, 2010; Bentour, 2018).

Like public debt, non-financial sector debt, has been rising over the past decades and not only in developing countries but also in developed countries as well (Randveer and Pank, 2017). Studies have shown that non-financial sector debt of advanced economies and its composition since 1980.Two facts stand out: first, total non-financial debt as a percentage of GDP, as well as its sectoral components, have been rising steadily for much of the past three decades. It has been reported that many countries especially in Sub-Saharan Africa borrow in foreign currency. Which makes them struggle to meet debt service obligations and face steep jumps in debt ratios following currency depreciations (Teger et al., 2006; et al., 2018).

Zambia's debt situation has been a major topic of discussion in both local and international news (Banda, 2015). This has largely been due to Zambia's growing debt: in 2011, Zambia's total debt was recorded at US\$3.5 billion and as of September 2018, this had risen to US\$14.4 billion (US\$9.4 billion external debt and K51.9 billion domestic debt). Concerns expressed by various stakeholders have been that Zambia's debt contraction has not increased growth but has instead become a burden on the economy (Banda, 2015; CUT International Zambia, 2015). And just in the year, 2022, The Zambian government through the Ministry of Finance secure IMF bailout amount to \$1.6 billion adding on the already accumulated debt (Ibid). However, it has been reviewed that regardless of the borrowing sector, rapid debt accumulation by countries be it private or public was closely associated with worse macroeconomic outcomes and vulnerabilities than those not associated with less dept. Fiscal and current account deficits widened in both types of debt but more has been recorded in government public debt than in private debt (Schaltegger and Burritt, 2010; Upreti and Upreti, 2015; Randveer and Pank, 2017).

#### Factors Affecting Economic Growth Private and Public Debt

Radveer and Uuskula (2011) Undertook a study on the impact of private debt on economic growth. The paper looked at economic recovery episodes and relate the growth performance of countries with their debt levels and debt growth before the beginning of the recession. The results of the study revealed that a higher level of debt before a recession is correlated with smaller economic growth after the economic slowdown has finished. In contrast, higher credit growth before a recession is associated with higher GDP growth after the crisis. The effects of debt on consumption are more negative, implying that after recessions people consume less and save more than they did in the period before the recession. However, the overall economic effects of the debt measures on GDP and consumption growth are limited. Similarly, Zieba et al., (2021) on his study on factors affecting economic growth on empirical evidence from developing countries found that sustainable government spending, low debt and natural resource rents have a favourable impact on per capita GDP growth. In contrast, rising labour force participation and inflation stifle economic growth in these countries.

**Elbadawi et al. (1996)** conducted a study on the relationship between economic growth and public debt in Northern Africa. Their main goal was to determine if there was a causal relationship between economic growth and public debt in the countries of interest during the period of the HIPC Fund Program. They adopted a VAR analysis using the dependent variable of economic growth and public debt as its explanatory variable. They found that there existed bi-directional causality between the two variables. However, this study assumed an existing relationship between variables of interest. The researchers chose to ignore the possible impact of other variables that might have an impact on either of the two variables.

**Clemens et al. (2003)** assessed the long-run relationship between excessive indebtedness and economic growth in HIPC countries. He adopted a VEC Model, using the variables Public Debt, Economic Growth, and Inflation. He found that countries that were highly indebted tended to experience instances of stunted growth and increased inflation, particularly when they had payments coming up. He also established long-run co-integration of at least the second order. However, their model was found to exhibit high multicollinearity amongst the explanatory variables, indicating an inefficient model. *Labour Force* 

**Banda (2015)** established a consistent positive relationship between the labour force and output per worker, a measure of economic productivity in Mauritius and South Africa from 2002 to 2012. However, a hindrance to optimum productivity was a mismatch in specialized skills produced from the education system to the labour market requirements. As the population grew in the developing nations, the labour force also increased due to the high absorption rate in 1960-1985 hence the positive economic growth (Bloom and Freeman 1986).

#### Public Expenditure

According to the Keynesian theory of economic growth, government expenditure positively impacts economic growth (Parui 2021). Public expenditure spurs domestic consumption, exports, and employment through the multiplier effect, thus generating more national income.

Barro's (1996) research established that current and development expenditure had a positive relationship in 100 countries in their sample for 1960-1995. Thus, he concluded that governments should spend more to boost economic growth. Additionally, Kimaro et al. (2017) also established a positive impact of public expenditure on economic growth in 25 Sub-Saharan Africa countries using the Gaussian Mixture model. However, other researches demonstrated the negative effect of government expenditure on economic growth. According to Devarajan et al. (1996), excessive government expenditure was unproductive in the 25 developing countries based on their research.

#### Natural Resources

The abundance of natural resources has been theoretically associated with increased economic development as they lead to more exports and generate natural resource rent (Auty 2013). However, recent studies indicate that developing nations do not benefit economically from their abundant natural capital stock. Barbier (2012) established stagnant growth from low and middle-income developing countries with significant natural resources stocks. His panel data analysis on 867 low-income countries showed increased agricultural land expansion in a lower per capita income level. This result confirmed the inverse relationship between natural resources and income per capita growth on mineral-driven economies study by Wright and Czelusta (2011). They concluded that the abundance of natural resources was more of a curse than a blessing to a developing country.

# Inflation

The subject of inflation and economic growth in developing countries has been of interest to many policymakers and researchers. Some economists argue that some inflation is necessary for economic growth, while others consider it detrimental(Upreti and Upreti, 2015). Andrés and Hernando (2014) established a significantly negative relationship between economic growth and inflation in OECD countries. Their research showed that inflation negatively affected the propensity to invest and reduced the efficiency of inputs used in production. On the other hand, Ndoricimpa (2017) estimated an inflation threshold of 9% for low-income countries and 6.5% for middle-income countries to positively impact growth. Above the threshold, it was considered detrimental to these countries' economic development. Given the various studies on factors influencing economic growth in developing countries, it is worthwhile to estimate the factors currently affecting developing nations for better policy development.

### Impact of Private Debt of Macro Economy and Social **Progression Index**

A literature review on the Social Progress Index (SPI) would typically include an analysis of academic papers, reports, and studies that discuss the SPI's development, methodology, applications, and impact (Green, Harmacek and Krylova, 2020). Social Progress Index (SPI) is a framework for measuring social progress that goes beyond traditional economic indicators (Green, Harmacek and Krylova, 2020; Andersson, 2000; Bentour, 2021, 2021; Randveer & Pank, 2017; Stavytskyy & Bilychenko, 2018). There are various theories and ideas regarding the SPI:

Social progression index is the capacity of the society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all in individuals to reach their full potential. The unique structure of the SPI captures the many facets of social and environmental performance by not including any economic measure. It enables a more accurate understanding of the relationship between economic development and social progress.

These theories and influences underline the idea that social progress is about more than just economic growth and can be better measured and understood by considering a wide array of factors that impact people's lives and well-being. The SPI seeks to provide a comprehensive framework for assessing and promoting social progress. The Social Progress Index (SPI) measures social progress using a set of indicators grouped into three broad categories: Basic Human Needs, Foundations of Wellbeing, and Opportunity.

Social progress has become an increasingly critical agenda for leaders in government, business, and civil society (Teger et al., 2006; Upreti & Upreti, 2015). The demand for better lives and greater equality is evident across the world as we see protests and new political movements for racial equity, women's rights, climate change, gun violence and beyond. As the Covid-19 pandemic swept the world it highlighted our structural weaknesses and our inequities (Bentour, 2021, 2021; Carlos & Carlos, 2021; Teger et al., 2006; Upreti & Upreti, 2015). There has been a growing expectation that it is not just governments who need to play a role in delivering improvements, but that business is also accountable, and must deliver improvements in the lives of people, as well as protecting the environment for us all. This is the social progress imperative. (Ibid)

Progress on social issues does not automatically accompany economic development (Green, Harmacek and Krylova, 2020). Rising income usually brings major improvements in areas such as access to clean water, sanitation, literacy, and basic education. But on average, personal security is no better in middle-income countries than in low-income ones and is often worse. And too many people regardless of income live without full rights and experience discrimination or even violence based on gender, religion, ethnicity, or sexual orientation. Traditional measures of national income, such as GDP per capita, fail to capture the overall progress of societies. The Social Progress Index rigorously measures country performance on many aspects of social and environmental performance which are relevant for countries at all levels of economic development. It enables an assessment of not just absolute country performance but also relative performance compared to a country's economic peers. The index gives governments and businesses the tools to track social and environmental performance rigorously, and make better public policy and investment choices. The Social Progress Index also allows us to assess a country's success in turning economic progress into improved social outcomes. Overall, the Social Progress Index provides the first concrete framework for benchmarking and prioritizing an action agenda advancing both social and economic performance (Ibid).

A key advantage of the Social Progress Index's exclusion of economic variables is that we can compare social progress relative to a country's level of economic development (Muhumed & Gaas, 2016; Social & Imperative, 2015; Stavytskyy & Bilychenko, 2018). In many cases, it is more useful and interesting to compare a country's performance to countries at a similar level of GDP per capita than to all countries in the world. For example, a lower-income country may have a low score on a certain component but may greatly exceed typical scores for countries with similar per capita incomes. Conversely, a high-income country may have a high absolute score on a component, but still fall short of what is typical for comparably wealthy countries. For this reason, we present a 4 | socialprogress.org country's strengths and weaknesses on a relative rather than absolute basis, comparing a country's performance to that of its economic peers.

The 2022 Social Progress Index rank was conducted in 169 countries that had sufficient available data to assess all 12 components (Social & Imperative, 2015; Upreti & Upreti, 2015). The countries were grouped from highest to the lowest social progress into six tiers. For the 2022 Social Progress Index deciles in the SPI scores across the 12 years were used. We then assign deciles into tiers as per the following: Tier 1: first decile, Tier 2: second and third decile, Tier 3: fourth and fifth decile, Tier 4: sixth and seventh decile, Tier 5: eighth and ninth decile, Tier 6: tenth decile. This method ensured comparability of tiers across years. This study explored changes in social progress at the country level since 2011, with spotlights on UK and US performance and the mandate for prioritizing social progress. According to this survey Norway ranked first on the 2022 Social Progress Index, with a score of 90.74. Germany, ranking eighth with a score of 88.72, is the top performing G7 country. All 20 Tier 1 countries are high-income, and all score very similarly on social progress just 4.7 points separate first-ranked Norway at the top of the tier from 20 ranked France at the bottom. Most of G7 and European countries were either Tier 1 or 2. Meanwhile Russia toped tier 3 with Ghana also toping Tier 4 from Developing countries. Zambia was in Tier 5. Tier 5 countries are generally low income, and several are fragile states where instability has hindered social progress(Social & Imperative, 2015; Upreti & Upreti, 2015).

One of the primary challenges in the Socioeconomic indicators domain across regions is addressing income inequality (Green, Harmacek and Krylova, 2020). The concentration of wealth among a small portion of the population widens the wealth gap. Moreover, access to quality education and employment opportunities plays a crucial role in socioeconomic advancement. Ensuring equitable access to education, skill development programs, and job opportunities is essential for reducing disparities in all regions (Green, Harmacek and Krylova, 2020). Additionally, each region faces unique challenges within its socioeconomic situation. In Europe, harmonizing social welfare systems and bridging the economic divide between different countries within Europe present challenges. In Asia, sustainable and inclusive growth, rural development, and reducing income disparities are key concerns (Social & Imperative, 2015; Stavytskyy & Bilychenko, 2018; Upreti & Upreti, 2015).

The COVID-19 pandemic significantly impacted the socioeconomic domain worldwide, disproportionately affecting low-income individuals and marginalized communities. It exacerbated existing inequalities, widening the wealth gap, and highlighting vulnerabilities. Moving forward, regions need to address the challenges exposed by the pandemic and work toward inclusivity and resilience (Green, Harmacek and Krylova, 2020). Governments should focus on economic recovery, job creation, and social welfare enhancements tailored to regional needs. Investments in education and skill development, along with measures to tackle income inequality and support vulnerable populations, are essential for a more equitable socioeconomic situation across the globe (Ibid).

### Related Literature on the Effect of Public and Private Debt on Economic Growth

Similar studied to the effect of public and private debt on the economic growth were reviewed and discussed in this empirical literature review. Empirical review was done to help in the selection of an appropriate methodology to be employed and also appreciate how variables of interest have been measured. A further reason justifying empirical review was to see how estimated results support theoretical arguments about debt and country's economic growth. Empirical literature was therefore analysed synthetically by combining elements of several sources.

There are several studies done on the effect of debt on the economic growth, for instance a study on factors affecting economic growth in developing countries by Upreti, (2015), revealed that low external debt, high volume of exports, plentiful natural resources, longer life expectancy, and higher investment rates have positive impacts on the growth of per capita gross domestic product in developing countries. Similar study by Clemens et al. (2013) assessed the long-run relationship between excessive indebtedness and economic growth in HIPC countries. He adopted a VEC Model, using the variables Public Debt, Economic Growth, and Inflation. He found that countries that were highly indebted tended to experience instances of stunted growth and increased inflation, particularly when they had payments coming up. He also established long-run co-integration of at least the second order. However, their model was found to exhibit high multicollinearity amongst the explanatory variables, indicating an inefficient model.

Snieška and Burksaitiene (2018) adopt an ordinary least square (OLS) and autoregressive (AR) model with cross-section data to analyze the influence of changes in real public debt, real private debt, and deflated house prices on GDP in 24 European Union (EU) countries. Small eurozone countries were excluded from the analysis due to fluctuations of their small economies caused by the volatile influence of offshoring financial services on their growth dynamics. The results suggest that, in the 24 European Union countries observed, the negative influence of public debt growth on the economy is significant when evaluated using zero-, one-, and twoyear lags.

Kumar and Woo (2010) found a linear inverse relationship between initial debt and subsequent growth in a sample of emerging and advanced economics. The impact of high debt was smaller in developed economics. They also found that only very high levels of the debt-to-GDP ratio had significant negative effects on economic growth. Reinhart and Rogoff (2010) studied 20 developed economies for about two centuries and found that the negative relationship between growth and level of debt was very weak. Partozio t el (2014) studied the determinants of economic growth in the poorer parts of East Asian countries. They adopted a VAR analysis using the variables foreign exchange, public debt, and tax revenue. They established a granger-causal relationship between the economic growth and public debt and tax revenue. The researcher also found that all the variables were statistically significant. However, the model didn't assess the determinants of public debt in these countries, choosing rather to focus on the economic growth side of the analysis.

*Lim* (2019) revisits the relationship between debt and growth from a vantage point that considers the totality of private and public debt. The study sample includes 41 countries from 1952 to 2016. It uses a vector autoregression (VAR) model as its baseline and estimates the panel VAR using generalized method of moments (GMM). Lim finds a negative relationship between the rate of total debt accumulation and economic growth, with a one standard deviation innovation in the former leading to a 0.2 percentage point contraction in the latter.

**Patililo et al.** (2012) carried out studies on various sample countries that were noted to have excessive indebtedness. They sought to find out if there was any negative impact from the relationship between public debt and economic growth. This was assessed using an Auto-Regressive Distributive Lag (ARDL) Model, adopting the variables of external public debt, tax revenue and economic growth. The model established both short-run and long-run relationships amongst the variables. The major downside of this study is that the researchers went into the paper with the bias of assuming a negative relationship and used that bias to assess their study, rather than letting the evidence guide their analysis. This makes their results rather spurious.

In the studies analysed above, it was noted that in the short-run, external debt has a positive impact on economic growth while in the long-run and above a certain threshold, debt exerts negatively on economic growth. Particularly, Pattillo et al (2002) concludes that lofty burden of debt hampers economic growth, mainly due to decline in the efficiency of investment and not because of the volume of debt. The negative and linear relationship between past values of the NPV of public external debt and current economic growth was supported by a study done by Armone and Presbitero (2007). He argued that the outcome of the study was due to the "extended debt overhang", where it was argued that a large indebtedness leads to misallocation of capital and discourage long-term investment and structural reforms.

Empirical data revealed that majority of developing countries are currently in debt distress, and several countries have external debt exposures that leave them vulnerable to debt difficulties from external shocks, such as falls in commodity prices or natural disasters (Ebert et al., no date; Bartlett, 2012; Lewis and Ida, 2012; Bentour, 2021). In addition, some low-income countries (LICs) are now access¬ing international capital markets, introducing new financing opportunities along with new risks, such as exposure to volatile international capital flows (Bank, no date; Debrun and Fund, no date; Bentour, 2021). At the same time, domestic debt issuance has increased in many developing countries, thus cre¬ating new opportunities for financing while reducing currency mismatches for domestic borrowers. Nonetheless, domestic debt overhang can be costly and, like other forms of debt, needs to be managed. Private debt in emerging market countries has also grown substantially since the financial crisis, posing systemic risks related to currency and maturity mis¬matches. Indeed, there is a risk that some liabilities could get shifted to the public balance sheet in the event of large-scale defaults (Ibid).

Abbas and Christensen (2010) also complement the vast literature in this area but focusing on public domestic debt growth effects using a panel of low-income Countries and emerging markets. The study shows that moderate levels of domestic debt have a positive contribution to GDP growth. It was also argued that the presence of developed financial markets, increased private savings, better institutions & political accountability and improved monetary policy mainly accounted for this outturn. H however it was concluded that in the long-run and when the stock of domestic debt becomes too large, its contribution to economic growth would be negative, because of inflationary pressures and crowding out of the private sector.

In a cross Country study done by Fossa (1996) on the effects of public external debt on Sub-Saharan Africa using Ordinary least square(OLS) estimation method. The study covered a time period 1970 to 1986. The findings from this study were consistent with theory as the study reviewed that 33% reduction in growth was due to the debt burden effects. Applying OLS estimation technique, a study was also done by Deshpande (1990) on 13 severely indebted Countries including Zambia, Venezuela, Sierra Leone, Philippines, Peru, Morocco, Mexico, Kenya, Honduras, Egypt, Ivory Cost, Argentina and Algeria. Data used covered a period 1971 to 1991. He concluded that in the short-run, investment showed a rising trend in all Countries but as debt accumulates a declining trend sets in. However, it was noted that application of OLS to analyse time series data and in particular public debt and economic growth variables which are highly endogenous could render the result bias even though consistent to theory.

Similar studies revealed that in the short-run, external debt has a positive impact on economic growth while in the long-run and above a certain threshold, debt exerts negatively on economic growth. Particularly, Pattillo et al (2002) concluded that lofty burden of debt hampers economic growth, mainly due to decline in the efficiency of investment and not because of the volume of debt. The study revealed a negative and linear relationship between past values of the Net Present Value of public external debt and current economic growth which was also supported by a study done by Armone and Presbitero (2007), who argued that the outcome of the study was due to the "extended debt overhang", where it was argued that a large indebtedness leads to misallocation of capital and discourage long-term investment and structural reforms.

Most studies in this area generally deal exclusively with either public external debt or public domestic debt and generally reaction to the two waves of (external) debt crisis, the first affecting several Countries or rather issues concerning the debt relief policies which targeted a number of heavily indebted and poor Countries (HIPC) including Zambia (IMF, Zambia, 2012, Chongo, 2013; MOF, 2012). However, very few studies focusing on either domestic debt or total public debt investigating the effects of public debt on economic growth have also been undertaken. Furthermore, most results under Generalised Method of Moments (GMM) techniques analysing the impact of public debt on economic growth were found to be consistent with theory.

Zambia began to experience debt problem from the early 1980s when foreign exchange earnings plummeted as a result of the collapse of prices in the international oil market and external loans began to be acquired indiscriminately (World Bank, 2017; IMF, 2012). The debt crisis, which is the combination of accumulated debt stock and difficulty servicing, has imposed several burdens on the Zambian economy (Chongo, 2013). This is reflected in the fall in real growth rates, investment rate and export earning since 1980. The debt burden has clearly been a constraining factor on the country's economic recovery growth and development.

In a study done by Chongo (2013) in Zambia on the impact of increasing public debt on Zambia's economic growth covering the period 1980 to 2008. The author also analysed the policy implication and channels through which public debt is said to have an impact on economic growth namely through private investments, public investments and domestic savings. The study adopted the Vector Error Correction Model (VECM) approach to analyse the two scenarios in the study. Results from the analysis confirmed a long-run negative relationship between public debt and economic growth. The result on the impact of public debt on private investments and domestic savings also gave an indication on the presence of the crowding out and debt overhang effects which can be explained by a rising debt burden measured by both the stock of Public Debt to Gross Domestic Product (GDP) and Public Debt Service to Revenues. The study also found a positive relationship between public investment and public debt indicating a possibility of crowding in effect. However, it was noted that the extent to which the affects economic growth depends on how the private sector responds given existing fiscal and monetary policies. The outcome of this study further revealed in the long run inverse relationship between real exchange rates with public debt and public debt service respectively, calls for Government to put in place a Medium-Term Debt Management Strategy to analyse the cost and risks inherent in the existing debt portfolio.

In the case of Zambia, the study undertaken by Chikuba (2003) focused only on public external debt effects on growth from 1970 to 1999. It was found that, there was crowding out of investment in Zambia due to the presence of debt overhang. The study applied the twostage-least squares regression approach and OLS to estimate the growth and investment model respectively. The two-stage-least squares technique was applied to cater for endogeneity problem between the debt and growth variables. Like other studies the results were valid and consistent with theoretical arguments, however the methodology did not state the direction of causation effect. Further, the study undertaken by Chikuba (2003) did not take into account the effects of public domestic debt on growth, despite being on the increase. This study will fill in this information gap. Furthermore, not too many studies focusing on either public external or domestic debt have been undertaken in Zambia thus creating a gap in information especially for policy guidance (Ibid). In this study therefore, the major objective is to critically assess and review the economic growth using debt and the effects that public and private debt has on Zambia on the economy.

#### Critique of the Existing Literature

Most of the reviewed literature focused on the effect of public debt on the economic growth and majority of authors used adopted a VEC Model and ordinary Least square model. Thus, there is need to use different approach and model from the different setup to see as to whether similar outcome can be realised. Some studies have argued that debt levels are of little concern as they relate to other economic factors as long as interest rates on the public debt remain below rates of economic growth in the long run (Blanchard 2019). This view of the debt-growth relationship may overlook existing primary budget deficit dynamics as well as the upward pressures of an increasing debt ratio (public debt as a share of GDP) on long-term interest rates. Acknowledging these uncertainties, more recent observations suggest that large increases in the debtto-GDP ratio could lead to much higher taxes, lower future incomes, and intergenerational inequity (Boskin 2020). Much research needs to be done to distinguish the causes of economic growth especially in developing countries and the real time effect of public and private debt, as the scope of existing research is limited due to a lack of reliable data especially in Zambia.

# III. THEORETICAL LITERATURE REVIEW

#### Theories of Public Debt and Economic Growth

In order to have a comprehensive understanding on the effects public and private debt has on economic growth. Thus, several theories have been reviewed. Theoretically, it is argued that a high level of public debt can have adverse consequences on the macroeconomic stability, discouraging capital inflows while favouring capital flight (Meenakshi, & Saxena, 2008). There have been divergent views expressed on the sources of economic growth over time. This section discusses some of theories of public debt and economic growth including the classical growth theory, Ricardo Theory of public debt, Keynesian growth theory and Theory of Government expenditure and economic growth.

### Traditional (Keynesian) Theory of Public Debt

According to the traditionalist theory, the increase in government debt puts the burden on the economy, and an increase in government spending is an expansionary fiscal shock to the economy (Greenwald and Stieglitz, 1993). The increase in government spending results to contraction of public debt if the country's revenue fails to meet the spending which in turn results to an increase in demand of goods and services, this is due to the fact that there will be more money in the economy chasing few goods and services. The increased demand for goods and services, in view of sticky prices in the short run, will raise output and employment. As the marginal propensity to consume is higher than the marginal propensity to save, the increase in private savings falls short of the government de-saving (Ibid). Real interest rate would rise in the economy encouraging capital inflow from abroad.

### Ricardo Theory of Public Debt

The Ricardo theory of public debt argues that the treatment of public debts by a statement that the ordinary and extraordinary expenditures of the State were chiefly payments made to sustain unproductive labourers and he pointed out that any saving from the expenses of the Government would be added to the income if not to the capital of the contributors (Churchman, 2001). So convinced was Ricardo of the wastefulness of public expenditure that he showed deep concern on government public expenditures. Therefore, this theory was based on an emphasis of the fact that the primary burden to the community was derived from the wasteful nature of public expenditure itself rather than from the methods adopted to finance such expenditure. Regarding the question of financing public expenditure his view was that the requisite funds would ultimately have to be drawn from the liquid resources of the community and that "in point of economy" it would make no great difference whether such funds were raised by taxes or by loans.

According to Ricardo payments of interest on public debt involved a transfer of wealth from one pocket to another within the community (Churchman, 2001). Those who received the transferred wealth might either " employ it productively " or " squander it unproductively "; whether in actual fact they would employ it more productively or less productively than those from whom the wealth was transferred Ricardo did not know; nor did he think that a government could arrive at a true decision on such a question. It appeared to him unprofitable to speculate at length as to which of these possibilities was the more likely to be true; accordingly, though he showed his awareness of the possibility of deviations one way or the other from his hypothesis and though he would no doubt have been willing to learn from experience, he treated the problem of public debts on the assumption that the different sets of individuals concerned would use the interest payments in an equally profitable manner (Ibid).

### Theory of Government Expenditure and Economic Growth

This theory argues that Government expenditure is government acquisition of goods and services for current or future use (Shim, 2003). The relationship between government spending and economic growth is very important for developing countries most of which have experienced increasing levels of public expenditure over time. Everything else held constant, government consumption will increase GDP since it contributes to current demand. However, there is also a negative effect since increased public expenditure needs to be financed. Financing public expenditure is done through taxes or by borrowing.

Mitchell, (2005) notes that policy makers are divided as to whether government spending helps or hinders economic growth. Advocates for increased Government spending argue that government programs provide valuable "public goods" such as education health facilities and infrastructure. They also claim that an increase in government can bolster economic growth by putting money into people's pockets. Proponents of smaller government expenditure have the opposite view. They explain that higher government spending undermines economic growth by transferring additional resources from the productive sector of the economy to government, which uses them less efficiently. This is called the crowding out effect on private sector investment. On the other hand, public expenditure might also have a positive effect onto interest rates, which in turn can decrease investment.

Mitchell (2005) conducted a study aimed at investigating the impact of government spending on economic performance in the United States of America. He concluded that a large and growing government is not conducive to better economic performance. He also noted that indeed, that there are circumstances in which lower levels of government spending would enhance economic growth and other circumstances in which higher levels of government spending would be desirable. It is assumed that if government spending is zero, presumably there will be very little economic performance. He further noted that economist will generally agree that government spending becomes a burden at some point, either because government spending becomes too large or because outlays are misallocated. However, Studies such as (Barrow 2003), (Easterly and Levin 2001) indicate that the relationship between government spending and economic growth is negative.

### Classical Growth Theory

This theory was started by Adam Smith in (1776). He proposed that output depends on the amount of input (i.e., labour, capital and land). Output growth (gY) is determined by the population growth (gL), increase in investment (gK), land growth (gT) and the total labour productivity growth (gF). The main factor of economic growth was the division of labour, which leads to the output growth, technical progress and accumulation. According to Smith, the division of labour is limited by the market dimension. If the division of labour increases more than output, then it increases the market dimension and induces further division of labour and as a result brings about further economic growth. Another factor which stimulates growth according to Smith is Capital accumulation. Therefore, income distribution is one of the most important determinants of the rate of growth of any company or state in this model.

# Theories of Private Debt

Theories of private debt refer to conceptual frameworks that attempt to explain the dynamics, causes, and consequences of private debt within an economy. Private debt consists of the obligations that individuals, households, businesses, and non-governmental entities owe to creditors. Several theories attempt to provide insights into the factors influencing private debt levels. Here are a few prominent theories:

### Debt Overhang Theory

This theory suggests that excessive levels of existing debt can impede economic growth. When entities have high levels of debt, it may lead to reduced spending and investment as they focus on debt repayment, hindering overall economic activity. The Debt Overhang Theory is an economic concept that addresses the negative effects of high levels of existing debt on economic growth and investment. This theory gained prominence, particularly in the context of financial crises and periods of economic downturn. The key idea behind the Debt Overhang Theory is that when individuals, businesses, or even entire economies carry a substantial amount of debt, it can constrain their ability to grow and invest in the future.

#### Financial Instability Hypothesis (Minsky's Theory)

Developed by economist Hyman Minsky, this theory posits that stability can lead to financial instability over time. Minsky identified three stages of borrowing: hedge finance, speculative finance, and Ponzi finance. As entities move from conservative (hedge) to riskier (speculative and Ponzi) financing, the likelihood of financial crises increases.

#### Credit Cycle Theory

This theory emphasizes the cyclical nature of credit markets. Credit cycles involve periods of expansion and contraction in credit availability. During a boom, credit is readily available, leading to increased debt levels. In contrast, during a bust or recession, credit tightens, potentially leading to debt deleveraging.

#### **Ricardian Equivalence**

This theory, associated with economist David Ricardo, suggests that individuals are forward-looking and anticipate the future tax implications of government debt. According to Ricardian Equivalence, changes in government debt may not significantly impact consumption patterns because individuals adjust their behavior based on expectations of future taxes.

#### Liquidity Preference Theory

Proposed by John Maynard Keynes, this theory focuses on the demand for money and suggests that individuals and businesses prefer to hold a portion of their wealth in liquid assets rather than as debt. Changes in interest rates can influence the demand for money and, consequently, the level of private debt.

#### Agency Cost Theory

This theory explores the relationship between borrowers and lenders, emphasizing potential conflicts of interest. It suggests that information asymmetry and moral hazard problems can lead to agency costs, where one party (e.g., borrowers) may act in its self-interest to the detriment of the other party (e.g., lenders), potentially resulting in increased debt levels. It is important to note that these theories often complement each other, and realworld dynamics may involve a combination of factors. Additionally, economic conditions, policy interventions, and global factors can also play significant roles in shaping private debt levels.

### **Theories on Social Progress Index**

The Social Progress Index (SPI) is a composite index that measures social progress and well-being in societies, focusing on non-economic factors. It provides a broader perspective than traditional economic indicators by incorporating social and environmental dimensions. While the Social Progress Index itself is a measure rather than a theoretical framework, it is informed by various social theories that emphasize the importance of non-economic factors in assessing overall societal well-being. Some relevant theories include:

Capabilities Approach, developed by economists Amartya Sen and Martha Nussbaum, emphasizes individuals' capabilities to live the lives they value. It goes beyond traditional economic measures and focuses on the opportunities and freedoms people have to lead fulfilling lives. The SPI incorporates similar principles by measuring outcomes in areas such as health, education, and personal rights. Human Development Theory or The Human Development Index (HDI), developed by the United Nations Development Programme (UNDP), is closely related to the Social Progress Index. Both indices share the foundational idea that development should be assessed by considering factors beyond economic indicators. Human development theory, as reflected in the HDI, emphasizes health, education, and standard of living as key components of well-being.

Quality of life theory or the concept of quality of life encompasses various factors contributing to an individual's overall well-being. It includes social, cultural, environmental, and economic dimensions. The SPI, by incorporating indicators related to personal rights, access to information, and environmental quality, aligns with the broader perspective of quality of life theory. Inclusive Growth theory emphasizes that economic development should benefit all members of society, reducing disparities and promoting shared prosperity. The SPI, by considering aspects such as inclusiveness and equality, aligns with the notion that social progress should not only be measured by aggregate improvements but also by the distribution of those improvements across different segments of the population. The Sustainable Development Goals (SDGs) is designed to align with the United Nations' Sustainable Development Goals (SDGs). These global goals provide a framework for addressing a wide range of social and challenges. environmental emphasizing the interconnectedness of issues like poverty, health, education, gender equality, and environmental sustainability.

The Social contract theory, originating from philosophers like John Locke, Jean-Jacques Rousseau, and Thomas Hobbes, addresses the implicit agreement between individuals and society. The Social Progress Index, by including indicators related to personal safety, political rights, and tolerance and inclusion, reflects the idea that social progress is contingent on a functioning social contract that ensures the well-being and rights of individuals.

While the Social Progress Index itself is a tool for measurement rather than a theory, its development and application draw on the principles and insights from various social theories that emphasize the multidimensional nature of human well-being. The SPI contributes to the ongoing dialogue on how societies can progress and improve the quality of life for their members beyond purely economic metrics.

# IV. RESEARCH METHODOLOGY

### Research Design

According to Lavrakas (2008), a research design is a general plan or strategy for conducting a research study to examine specific testable research questions of interest. According to Johnson and John (2002) research design provides a framework or plan of action for the research. A research design is the structure, or the blueprint, of research that guides the process of research from the formulation of the research questions and hypotheses to reporting the research findings (Gakure, 2010).

The study adopted a longitudinal research design and utilized descriptive and correlational statistics in order to determine the relationship between the independent variables (private and public debt) and economic growth. Lavrakas (2008) described correlational research as a type of longitudinal study, non-experimental research because it describes and assesses the magnitude and degree of an existing relationship between two or more continuous quantitative variables with interval or ratio types of measurements or discrete variables with ordinal or nominal type of measurements. The overall aim was to discover new meaning, describe what exists, determine the frequency with which something occurs and categorize information (Sekaran & Bougie, 2011).

### **Target Population**

Beck and Pollitt (2003) refer to the term population as the aggregate or totality of those conforming to a set of specifications. Target population is defined as the population to which a researcher generalized the results of a study (Kothari, 2004). main source of secondary data was BOZ annual reports, IMF reports, Central statistical office (CSO) and the World Bank. The target population was designed to ensure updated information and to follow the trend in different government regimes with different debt structure and debt management system. This period was chosen based on the availability of availability of information and to have adequate observation for a meaningful analysis.

### **Data Sources**

This study will utilize secondary data. Utilisation of Secondary data is the analysis of data that was collected by someone else for another primary purpose. The utilization of this existing data provides a viable option for researchers who may have limited time and resources. Secondary analysis is an emp3rical exercise that applies the same basic research principles as studies utilizing primary data and has steps to be followed just as any research method. Thus, secondary data will be obtained from BOZ annual reports, IMF reports, Zambia statistical Agency (CSO) and the World Bank. This study covered and utilize secondary data from the period 1964 to 2020 (a period of 56 years). This was to ensure updated information and to follow the trend in different government regimes with different debt structure and debt management system.

# Data Quality and Validity

In a time where vast amounts of data are being collected and archived by researchers all over the world, the practicality of utilizing existing data for research is becoming more prevalent (Smith et al., 2011). The quality of secondary data dictates the scope of primary data collection. In view this secondary data collected was cleaned before analysis to ensure relevance of the results. Furthermore, given the time and resources required for conducting first hand data, it is essential that every effort be made to collect secondary data beforehand to streamline the process and provide the essential contextual information for comprehensive research finding (Reilly et al., 2010).

# Data Analysis

The data collected was analyzed using, charts, tables, graphs, and regression and correlation analysis via Statistical and Analysis (SPSS) software version 26. Correlation analysis was utilized to determine the nature and the degree of the relationship between the study variables (Private and Public debt against GDP growth). While regression analysis was utilized to establish the existing relationship between the dependent and independent variables. In order to establish the effect private and public debt on economic growth, dependent variables were regressed with identified independent variables to confirm the effect.

# Ethical Considerations

Even though the study is based on the system and technology rather than that of individuals or entities. Ethical clearance was sought from UNZAHESSA before proceeding the report.

# V. RESEARCH RESULTS AND ANALYSIS

### **Regression and Analysis**

The analysis was done using inferential statistics with the help of excel 2016. The main objective of this study was to critically assess and review the economic growth using debt and the effects that public and private debt has on Zambia's economy using statistical analysis. *Test for Significance* 

Statistical regression and analysis of Variance (ANOVA) were done in order to test the significance of the model and to ascertain the relationship between private and public debt on the economy using investment, nominal

GDP and Real GDP. Table 5.1 below represent the summary of findings from the ANOVA Test for Public and Private debt.

Table 1: ANOVA Analysis									
Model	P	R-Squared	Adjusted R-	Std. Error of the	Prob > F(Sig)				
	K		Squared	Estimate					
1	0.452	0.234	0.1605	3.65	0.0059				
2	0.338	0.48	0.19	6.819	0.0092				

The findings in table 5.2 above indicates that Rsquared (coefficient of determination) which simply explains the variations in the dependent variable caused by independent variable. In table 5.2, R squared is 23% for public debt model and 48% for private debt model indicating that the both independent variables (Public and private debt) affect the change in economic growth and investment by that much. The remaining % represents all the variables which have not been presented by the model. The value of the correlation (R) 45% for public and 34% for private debt implying that the relationship that exist between economic growth and the explanatory variables (Public and private debt) is significant and relatively strong. The model was found to be significant at p value less than 5%. This relationship can be explained that public and private debt has a substantial effect on economic growth and investment in the Zambian economy. It can be noted from the table that the p-value is less than the critical value (0.0059 < 0.05 model 1 and 0.0092<0.0092 model 2). Therefore, this shows that the model is a good fit and statistically significant in predicting the impact of the explanatory variables on economic growth as it was less than 5%. To this extent, public and private debt plays a major role in determining the investment levels and the economic growth of the country. Proper and effective use of these debts can result in accumulation of economic growth whereas wrongfully use will depress economic growth and servicing will weaken the economy.

# Regression Analysis

In order to determine the relationship and approximate the magnitude of impact that each Public Debt has on investment and economic growth GDP, multiple linear regression was performed for model 1:

$$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \mu$$

The findings from the analysis are presented in table 3 below

ANOVA						_					
	df	SS	MS	F	Significance F	_					
Regression	4	60236.15	20078.72	4.634293	0.0059						
Residual	54	233962.5	4332.638								
Total	57	294198.6				-					
		Standard				Upper	Lower	Upper			
	Coefficients	Error	t Stat	P-value	Lower 95%	95%	95.0%	95.0%			
Intercept	149.0913	18.27721	8.157224	5.5E-11	112.4477	185.7349	112.4477	185.7349			
Investment	2.141422	2.512159	0.852423	0.397744	-2.89515	7.177997	-2.89515	7.177997			
Growth	-15.2628	15.10944	-1.01015	0.316927	-45.5554	15.02977	-45.5554	15.02977			
GDP Rate	-12.0076	3.763658	-3.19042	0.002367	-19.5533	-4.46197	-19.5533	-4.46197			
NGDP	-2.819538	1.04618	-2.69505	0.009273	-4.91530	-0.72377	-4.91530	-0.72377			
Intercept: Public Debt											

Table 2: Analysis of association between Public Debt against investment and economic growth GDP

The regression model indicates that public debt has a negative impact on economic growth rate, Growth, and Nominal GDP as indicated by the coefficient of - 12.0076, -15.2628 and -2.8158 respectively. This implies that an increase in public debt will decrease economic growth. This negative relationship between public debt

and economic growth has confirmed the neoclassical theory of public debt However, public debt impact on investment was found not significant at p value 0.05, despite the coefficient indicating a weak positive correlation. The association between private debt economic growth by GDP and NGDP was found to be significant with p values less than 0.05 and the entire model was significant at p-values (0.0059<0.05). Therefore we accept the null hypothesis that public debt does not have a positive effect on Zambia's economic growth and reject the alternative hypothesis stating that public debt has a positive effect on GDP growth.

The findings from the analysis are presented in table 5.4 below

Table 3: Analysis of association between Private Debt against investment and economic growth GDP

					Significance	-5		
	df	SS	MS	F	F			
Regression	3	186.9317	62.31057	0.59915	0.009339			
Residual	54	5615.907	103.9983					
Total	57	5802.838				56		
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	5.99789015	2.831697	2.118126	0.038783	0.32068	11.6751	0.32068	11.6751
Investm ent	0.107840266	0.38921	0.277075	0.02781	-0.67248	0.888159	0.67248	0.888159
Growth	2.862357564	2.340912	1.222753	0.226733	-1.83089	7.555604	1.83089	7.555604
GDP Rate	0.021223663	0.583105	0.036398	0.01711	-1.14783	1.19028	1.14783	1.19028
GDP	0.23390415	0.15300	1.528705	0.131966	0.03260	0.5404	0.0326	0.5404

#### *Intercept: Private debt as % GDP*

investment, growth, economic growth by GP and increase in the country's nominal GDP. The association between private debt, investment, economic growth by GDP and NGDP was found to be significant with p values less than 0.05 and the entire model was significant at p-values (0.0092<0.05).

The regression model indicates that private debt has positive impact on economic investment, growth rate, Growth, and Nominal GDP as indicated by the coefficient of 0.1078, 2.86235, 0.0212236 and 0.233904 respectively. This implies that an increase in private debt will likely lead to the increase in investment, growth, economic growth by GP and increase in the country's nominal GDP. The association between private debt, investment, economic growth by GDP and NGDP was found to be significant with p values less than 0.05 and the entire model was significant at p-values (0.0092 < 0.05).

#### Impact of Private Debt on Zambia's Microeconomy-Social Progression Index

In order to determine the relationship between Private Debt on Zambia's Macroeconomy-Social Progression Index and approximate the magnitude of impact of private debt on social progression Index, private debt was regressed against, poverty change, health care Per GDP ratio, literacy level change, carbon (CO2) emissions (MT/capital), electricity access rate, life expectancy growth rate and GDP /capital growth rate.

Regression Statist	ics
Multiple R	0.72135
R Square	0.520346
Adjusted R Square	0.040692
Standard Error	1.745285
Observations	15

#### ANOVA

	df		SS	MS	F	Significance F
Regression		7	23.13104	3.304434	1.084836	0.045861
Residual		7	21.32215	3.046021		
Total		14	44.45319			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	13.17791	6.869593	1.918295	0.096572	-3.0661	29.42191	-3.0661	29.42191
Poverty Change Health care Per GDP	-1.14429	2.483197	-0.46081	0.658909	-7.01611	4.727542	-7.01611	4.727542
Ratio	-57.5405	106.6649	-0.53945	0.030077	-309.763	194.682	-309.763	194.682
Literacy level Change Carbon (CO2) Emissions	0.064579	0.198786	0.324866	0.754776	-0.40548	0.534633	-0.40548	0.534633
(MT/capital) -	7.965045	20.38182	0.390792	0.707572	-40.2303	56.16038	-40.2303	56.16038
Electricity Access Life Expectancy Growth	2.390021	16.3168	0.146476	0.887675	-36.1931	40.97313	-36.1931	40.97313
rate GDP /capital Growth	-75.0971	171.1683	-0.43873	0.674078	-479.846	329.6516	-479.846	329.6516
Rate	0.214516	2.358751	0.090945	0.930084	-5.36304	5.792076	-5.36304	5.792076

Intercept: Private debt

The regression model indicates that private debt had positive impact on literacy, carbon emission per capital, electricity access and GDP per capital growth as indicated by the coefficient of 0.064579, 7.965045 and 2.390021 respectively. However, it was also found that private debt had a negative impact on poverty, Healthcare, and life expectancy as indicated by the negative coefficients; -1,14429, -57.5405 and -75.0971 respectively. This implies that an increase in private debt will likely lead to the increase in literacy growth rate, carbon emission per capital and electricity access. On the other hand it will affect poverty, Healthcare, and Life expectancy negatively. as indicated by the negative . The association between private debt and social progression index was found to be significant with p values less than 0.05 and the entire model was significant at p-values (0.045861<0.05).

The multiple R was found to be 0.72 which implies that, there is a strong correlation between the independent

variable (Private debt) and the dependent variables (the social progression index indicators). The R square was found to be 0.52 medium variability. Thus, this means that there was correlation between independent and the dependent variables with medium variabilities.

# VI. DISCUSSION AND INTERPRETATION OF FINDINGS

The regression model indicates that public debt has a negative impact on economic growth rate, Growth, and Nominal GDP as indicated by the coefficient of -12.0076, -15.2628 and -2.8158 respectively. This implies that an increase in public debt will decrease economic growth. This negative relationship between public debt and economic growth has confirmed the neoclassical theory of public debt However, public debt impact on investment was found not significant at p value 0.05, despite the coefficient indicating a weak positive correlation. The association between private debt economic growth by GDP and NGDP was found to be significant with p values less than 0.05 and the entire model was significant at p-values (0.0059 < 0.05). Therefore we reject the null hypothesis that public debt has a positive impact on the economy and accept the alternative hypothesis stating that public debt does have a positive effect on GDP growth on Zambia. Similar studies have also revealed that debt level on GDP growth remains negative for all the models while the relation between debt and GDP growth remains positive (Galway et al., 2012; Josef, 2016; Lewis & Ida, 2012; Upreti & Upreti, 2015). The size of the estimated coefficient varies and is in general smaller in absolute value when longer periods are used for the time before the crisis (Ibid).

On the other hand, the regression model indicates that private debt has positive impact on economic investment, growth rate, Growth, and Nominal GDP as indicated by the coefficient of 0.1078, 2.86235, 0.0212236 and 0.233904 respectively. This implies that an increase in private debt will likely lead to the increase in investment. growth, economic growth by GP and increase in the country's nominal GDP. Similar finding have also been reported by (Andersson, 2000; Bartlett, 2012; Schaltegger & Burritt, 2010) The association between private debt, investment, economic growth by GDP and NGDP was found to be significant with p values less than 0.05 and the entire model was significant at p-values (0.0092<0.05). Therefore, based on the correlation analysis results, we reject the null hypothesis that states that Private debt does not have a positive effect on GDP growth and accept the alternative hypothesis that private debt has a positive effect on GDP growth. The private sector is very important for the growth of the economy as it creates jobs and provides income for Zambians (Banda-muleya, 2018; Bentour, 2021). Increased debt accumulation is negatively affecting the operations of businesses, slowing down growth and ultimately leaving the economy vulnerable to collapse (Eberhard et al., 2008; Economic, 2020; Upreti & Upreti, 2015). Businesses are already underperforming, holding back growth, and will suffer if the Government does not address the debt problem, resulting in increased unemployment, coupled with higher cost of living and increasing poverty in the country.

Overall the results from the ANOVA test indicated that the model was very significant in determining the impact of public and private debt on investment and economic growth in Zambia, and that these variables play a substantial role in determining the country's economic growth. The regression model indicates that public debt has a negative impact on economic growth. This negative relationship between public debt and economic growth has confirmed the neoclassical theory of public debt. These findings are consistent with previous research and some of these factors have the same effect on economic growth of both developed and developing countries (Eberhard et al., 2008; Economic, 2020; Lewis & Ida, 2012; Non-causality, 2013; Randveer & Pank, 2017; Upreti & Upreti, 2015). However, this study does not give clear indication on the effects of some variables on economic growth of developing countries. First, it finds contradictory result on the effects of total investment on economic growth. It finds that inflow of investment had positive effects on economic growth in one-time period, whereas it has a negative effect in another for developing countries. In addition, the models do not find consistent results for the effects of government debt and foreign aid inflow on economic growth. The first model showed a negative effect of high level of government debt and high levels foreign aid. Additional models do not complement the findings, thus leaving a gap in the study to be filled by future studies. While this study has political implications on how to effectively raise the economic conditions of developing countries, more research needs to be done. The effect of the debt level on GDP growth remains negative for all the models while the relation between debt and GDP growth remains positive (Galway et al., 2012; Josef, 2016; Upreti & Upreti, 2015). The size of the estimated coefficient varies and is in general. Future researchers should run time series or panel analysis using a similar dataset to verify the results from this study. The policy suggestions generated by such research could have a significant impact on the growth rates of developing countries.

In order to determine the relationship between Debt on Zambia's Microeconomy-Social Private Progression Index and approximate the magnitude of impact of private debt on social progression Index, private debt was regressed against, poverty change, health care Per GDP ratio, literacy level change, carbon (CO2) emissions(MT/capital), electricity access rate, life expectancy growth rate and GDP /capital growth rate. The study revealed that private debt has positive impact on literacy, carbon emission per capital, electricity access and GDP per capital growth. The private sector is very important for the growth of the economy as it creates jobs and provides income for Zambians (Banda-muleva, 2018; Bentour, 2021). Increased debt accumulation is negatively affecting the operations of businesses, slowing down growth and ultimately leaving the economy vulnerable to collapse (Eberhard et al., 2008; Economic, 2020; Upreti & Upreti, 2015). However, it was also found that private debt had a negative impact on poverty, healthcare, and life expectancy. This implies that an increase in private debt will likely lead to the increase in literacy growth rate, carbon emission per capital and electricity access. On the

other hand it will affect poverty, healthcare, and life expectancy negatively as indicated by the negative. The multiple R was found to be 0.72 which implies that, there is a strong correlation between the independent variable (Private debt) and the dependent variables (the social progression index indicators). This is in lines with findings from (Mwanza, 1989; Randveer & Pank, 2017; Saungweme & Odhiambo, 2019; Social & Imperative, 2015). The R square was found to be 0.52 medium variability. Thus, this means that there was correlation between independent and the dependent variables with medium variabilities. Zambia's debt situation has negative implications on business owners and consumers making the cost of doing business and the cost of living very high. In this environment the need to influence the public and policy makers to understand the consequences of debt and promote value for money policies through well evidenced research is critical. The growing cost of servicing the increasing levels of debt are beginning to squeeze out domestic spending and indications are government arrears are beginning to be a drag on the economy and the social progression of the Zambian society. The relationship between debt and social progression index was extensively explored leading to the main outcome that private debt. Mostly, government debt has a negative impact on the economy and the social progression index of the country, and in many cases that impact gets more pronounced as debt increases.

# VII. CONCLUSION AND RECOMMENDATIONS

#### Conclusion

In conclusion, using a linear multiple regression model, the study has analysed the impact of Public and private debt on investment, social progress index and economic growth in Zambia between the period of 1964 to 2021.

The first objective of the study was to determine the relationship between public debt on economic growth in Zambia. The study concluded that there was a relationship between public debt and economic growth has confirmed the neoclassical theory of public debt. However, public debt impact on investment was found not significant at p value 0.05, despite the coefficient indicating a weak positive correlation. The association between private debt, investment, economic growth by GDP and NGDP was found to be positively correlated and significant p-values (0.0092<0.05). However, it was revealed that increasing the amount debt especially public debt affects and reduces the level of economic growth.

The second objective was to establish the effects of private debt on Zambia's economic growth. The study however revealed that private debt increases investment and domestic saving, the results have shown that it positively impacted economic growth.

The third objective was aimed at determining the impact of private debt on the Zambia's social progression index. The relationship between private debt and social progression index was extensively explored leading to the conclusion that high debt, mostly government debt, has a negative impact on economy and the social progression index of the country, and in many cases that impact gets more pronounced as debt increases. Future researchers should run time series or panel analysis using a similar dataset to verify the results from this study. The policy suggestions generated by such research could have a significant impact on the growth rates of developing countries.

#### **Recommendations**

One of the areas of recommendation is on availability of the country's economic data. There is no consistency in making this data available to the public or online. For instance, public debt and private debt data from 1964 to 1970 is not publicly available. Most of the available data on the official Zambian sites is limited to three decades ago. Therefore, the country needs to put in place a reliable macroeconomic database to support more research in this field. This will help in recommendation of policy and debt management strategies with specific areas in mind.

The country also needs to implement an effective debt sustainability strategy which will ensure that the money acquired through debt is not only spent in developing one sector of the economy but in developing multiple sectors which will generate more revenue to repay the debt and improve social progression index of the country. A scrutinizing agency is also needed to be in place before the acquisition of debt. This would help in reducing the acquisition of debts which have little significance in improving the economy.

A strong legal framework should also be emphasizing so as to reduce the amount of funds being misappropriate used or diverted for individual gains or other unsustainable projects. In order to ensure transparency to the public and donors on the management of public and private debt, publication of detailed macroeconomic reports every quarter and a consolidated annual report is highly recommended.

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